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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/901,782	07/09/2001	Susan Hardin	0007/01UTL	9388
7590	05/07/2008		EXAMINER	
Robert W. Strozier ROBERT W. STROZIER, P.L.L.C. P.O. Box 429 Bellaire, TX 77402-0429			SISSON, BRADLEY L	
			ART UNIT	PAPER NUMBER
			1634	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/901,782	Applicant(s) HARDIN ET AL.
	Examiner Bradley L. Sisson	Art Unit 1634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(o).

Status

- 1) Responsive to communication(s) filed on 10 March 2008 and 29 April 2008.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 10,16-19,50-56,64-74,76-92,94-100,102-106 and 108-111 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 10,16-19,50-56,64-74,76-92,94-100,102-106 and 108-111 is/are rejected.
- 7) Claim(s) 52,66,73,83 and 94 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 06 March 2006 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-548)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No./Mail Date 29 April 2008
- 4) Interview Summary (PTO-413)
 Paper No./Mail Date _____
- 5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

Specification

1. The use of the trademarks AMERICAN TYPE CULTURE COLLECTION, ATCC, SEPHADEX, SEQUENASE, and HOECHST have been noted in this application. They should be capitalized wherever they appear and be accompanied by their respective generic terminology.
2. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.
3. The disclosure is objected to because of the following informalities: On 03 April 2005 an amendment to the specification was made. Upon review of page 5 of the amendment, it is noted that "ethanol" is listed twice. See line 17 and the last line of page 5.
4. Appropriate correction is required.
5. The specification is objected to as documents have been improperly incorporated by reference. It is noted that the specification contains reference to numerous documents, yet the complete bibliographical citation has not been provided. In general, only the last name of the first named author and publication year are provided. A review of the original specification fails to find where any bibliographical index has been provided. As a consequence, it is not readily apparent as to just which journal(s) the publications appeared in, much less identify where in the

various articles the essential materials is to be found. As set forth in *Advanced Display Systems Inc. v. Kent State University* (Fed. Cir. 2000) 54 USPQ2d at 1679:

Incorporation by reference provides a method for integrating material from various documents into a host document--a patent or printed publication in an anticipation determination--by citing such material in a manner that makes it clear that the material is effectively part of the host document as if it were explicitly contained therein. *See General Elec. Co. v. Brenner*, 407 F.2d 1258, 1261-62, 159 USPQ 335, 337 (D.C. Cir. 1968); *In re Lund*, 376 F.2d 982, 989, 153 USPQ 625, 631 (CCPA 1967). **To incorporate material by reference, the host document must identify with detailed particularity what specific material it incorporates and clearly indicate where that material is found in the various documents.** *See In re Seversky*, 474 F.2d 671, 674, 177 USPQ 144, 146 (CCPA 1973) (providing that incorporation by reference requires a statement "clearly identifying the subject matter which is incorporated and where it is to be found"); *In re Saunders*, 444 F.2d 599, 602-02, 170 USPQ 213, 216-17 (CPA 1971) (reasoning that a rejection or anticipation is appropriate only if one reference "expressly incorporates a particular part" of another reference); *National Latex Prods. Co. v. Sun Rubber Co.*, 274 F.2d 224, 230, 123 USPQ 279, 283 (6th Cir. 1959) (requiring a specific reference to material in an earlier application in order to have that material considered a part of a later application); *cf. Lund*, 376 F.2d at 989, 153 USPQ at 631 (holding that a one sentence reference to an abandoned application is not sufficient to incorporate from the abandoned application into a new application). (Emphasis added.)

6. Accordingly, the cited documents are not considered to have been incorporated by reference and as such, have not been considered with any effect towards their fulfilling, either in part or in whole, the enablement, written description, or best mode requirements of 35 USC 112, first paragraph.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 1634

8. Claims 19, 56, 70, 78, 88, and 99 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

New Matter.

9. Claims 19, 56, 70, 78, 88, and 99 all refer to a collection of amino acid positions of SEQ ID NO. 11. Claim 19 is exemplary, and for convenience, is reproduced below.

1 19(~~currently amended~~) The composition of claim ~~49~~¹⁰⁸, wherein the polymerase comprises
2 *Taq* DNA polymerase I having a tag attached to an amino acid at a specific amino acid position of
3 the *Taq* DNA polymerase I, where the amino acid position and the site is or the sites are selected
4 from the group consisting of 513-518, 643, 647, 649 and 653-661 of SEQ ID No. 11, where the tag
5 comprises a fluorescent molecule.

10. A review of the application finds that the application was originally filed with a Sequence Listing that contained 48 sequence listings, and had the following for SEQ ID NO. 11:

```
<210> 11
<211> 36
<212> DNA
<213> Thermus aquaticus

<220>
<221> Mutation
<222> (22)..(24)
<223> Taq Pol I Mutation Complimentary Strand: AA Site 652 glu to
      cyt:
      antisense codon: ctc -> gca.  5' to 3' listing.

<400> 11
gcccattcagg gggtecacgg cgcacccgggg gacggcc
      36
```

Art Unit: 1634

11. A review of the current Sequence Listing finds that SEQ ID NO. 11 is not some 832 amino acids in length. Further, a review of the original Sequence Listing fails to find where applicant had disclosed under any SEQ ID NO. a protein that was 832 amino acids in length.

12. A review of the file history fails to find where applicant contemplated, and properly incorporated by reference, the now disclosed amino acid sequence.

13. It is further noted that upon review of the disclosure, applicant had contemplated various mutants of Taq polymerase, and at no time was this specific amino acid sequence disclosed. In view of the apparent addition of this sequence to the disclosure, the specification and claims 19, 56, 70, 78, 88, and 99 are deemed to comprise new matter.

Response to argument

14. At page 13 of the response received 10 March 2008, applicant's representative asserts:

Applicants respectfully disagree with the Examiner. Examiner Smith required Applicants to add the fully *Taq* Polymerase I listing very early in the prosecution of this case, SEQ. ID NO. 11. So the sequencing listing to *Taq* sites are fully enabled. The *Taq* polymerase I sequence was contained in a document incorporated by reference: Eom et al, 1996; Li et al, 1998a; Li et al, 1998b. The sequence was added on 03-11-2004 in the sequence listing filed that day. Applicants, therefore, respectfully request withdrawal of this section 112, first paragraph rejection.

15. The above argument has been fully considered and has not been found persuasive. While agreement is reached in that, the specification was amended so to overcome a prior rejection or issue of enablement, such does not supercede the requirement that the subject matter be properly incorporated by reference. As reproduced above, applicant asserts that the information was found in documents incorporated by reference. However, there is no full bibliographic citation for the identified documents. It is also noted that applicant has not identified just where this

Art Unit: 1634

citation was made in the original specification. As set forth in *Advanced Display Systems Inc. v. Kent State University* (Fed. Cir. 2000) 54 USPQ2d at 1679:

Incorporation by reference provides a method for integrating material from various documents into a host document--a patent or printed publication in an anticipation determination--by citing such material in a manner that makes it clear that the material is effectively part of the host document as if it were explicitly contained therein. *See General Elec. Co. v. Bremner*, 407 F.2d 1258, 1261-62, 159 USQP 335, 337 (D.C. Cir. 1968); *In re Lund*, 376 F.2d 982, 989, 153 USPQ 625, 631 (CCPA 1967). **To incorporate material by reference, the host document must identify with detailed particularity what specific material it incorporates and clearly indicate where that material is found in the various documents.** *See In re Seversky*, 474 F.2d 671, 674, 177 USPQ 144, 146 (CCPA 1973) (providing that incorporation by reference requires a statement "clearly identifying the subject matter which is incorporated and where it is to be found"); *In re Saunders*, 444 F.2d 599, 602-02, 170 USPQ 213, 216-17 (CPA 1971) (reasoning that a rejection or anticipation is appropriate only if one reference "expressly incorporates a particular part" of another reference); *National Latex Prods. Co. v. Sun Rubber Co.*, 274 F.2d 224, 230, 123 USPQ 279, 283 (6th Cir. 1959) (requiring a specific reference to material in an earlier application in order to have that material considered a part of a later application); *cf. Lund*, 376 F.2d at 989, 153 USPQ at 631 (holding that a one sentence reference to an abandoned application is not sufficient to incorporate from the abandoned application into a new application). (Emphasis added.)

In the instant case, the specification does not identify the various documents much less identify with any degree of particularity just what is being incorporated by reference from the various documents. Accordingly, applicant cannot now rely upon these documents to overcome the deficiencies of the disclosure.

16. For the above reasons, and in the absence of convincing evidence to the contrary, the rejection is maintained

17. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 1634

18. Claims 52, 66, 73, 83, and 94 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

19. Claims 52, 66, 73, 83, and 94 have been found to contain the trademark SEQUENASE. It is noted that products represented by a trademark are subject to change without public notice. This rejection can be overcome by writing the trademark in capital letters and including, within parenthesis, a generic description of the product identified.

Claim Rejections - 35 USC § 102/103(a)

20. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

Art Unit: 1634

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
23. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
24. Claims 10, 13, 17, and 18 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US Patent 6,982,146 B1 (Schneider et al.).
25. It is noted that while Schneider et al., was published 03 January 2006, it claims benefit of priority to provisional application 60/151,580, filed 30 August 1999. In comparison, the instant application claims benefit of priority to provisional application filed 07 July 2000. Accordingly, Schneider et al., qualifies as 102(e)-type art.
26. Schneider et al., disclose methods, and related compositions, for conducting sequencing reactions. As seen at column 5, the polymerase and nucleotides are both labeled, and that either can serve as a donor or acceptor of a signal, which can be fluorophores.
27. Schneider et al., column 9, teach explicitly of the application of fluorescence resonance energy transfer (FRET).

Art Unit: 1634

28. Schneider et al., column 10, teach, “[o]ne of ordinary skill in the art can easily determine...which fluorophores will make suitable donor-acceptor FRET pairs.”
29. Schneider et al., column 13, disclose a plethora of polymerizing agents.
30. Schneider et al., column 25, teach that the fluorophore can be linked directly or indirectly to the nucleotide.
31. Schneider et al., column 9, teach that the donor and acceptor fluorophores need to be within 10 to 100 Angstroms of one another for fluorescence resonance energy transfer to take place.
32. Schneider et al., column 24, first full paragraph, teach that the linkage which couples the fluorophore to the nucleotide can be designed such that it is cleaved, thereby releasing the fluorophore, prior to the incorporation of the next nucleotide.
33. In view of the above remarks, and in the absence of convincing evidence to the contrary, claims 10, 13, 17, and 18 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US Patent 6,982,146 B1 (Schneider et al.).

Response to argument

34. At page 15 of the response received 10 March 2008, applicant’s representative asserts: Schneider et al., does not teach or even suggest a sequencing composition including nucleotides bearing tags bonded to a part of the nucleotide that is released during nucleotide incorporation – non-persistent labeling – labeling that is not incorporated into the growing DNA sequence – in a FRET type sequencing strategy.
35. The above argument has been fully considered and has not been found persuasive for a shown above, Schneider et al., at column 24, first full paragraph, teach that the linker used to attach the fluorophore (applicant’s tag) to the nucleotide can be cleaved prior to the incorporation

Art Unit: 1634

of the next nucleotide. Clearly, the removal of the fluorophore label (tag) prior to the incorporation of the next nucleotide meets the limitation of non-persistent labeling.

36. Claims 16, 19, 50-56, 64-74, 76-92, 94-100, and 102-106, 108-111 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,982,146 B1 (Schneider et al.) in view of US Patent 7,037,687 B2 (Williams et al.) and US Patent 5,849,478 (Cashman).

37. It is noted that while Schneider et al., was published 03 January 2006, it claims benefit of priority to provisional application 60/151,580, filed 30 August 1999. In comparison, the instant application claims benefit of priority to provisional application filed 07 July 2000. Accordingly, Schneider et al., qualifies as 102(e)-type art.

38. Schneider et al., disclose methods, and related compositions, for conducting sequencing reactions. As seen at column 5, the polymerase and nucleotides are both labeled, and that can serve as either a donor or acceptor of a signal, which can be fluorophores.

39. Schneider et al., column 9, teach explicitly of the application of fluorescence resonance energy transfer (FRET).

40. Schneider et al., column 10, teaches, “[o]ne of ordinary skill in the art can easily determine...which fluorophores will make suitable donor-acceptor FRET pairs.

41. Schneider et al., column 13, disclose a plethora of polymerizing agents, which include DNA polymerase I, Taq polymerase, reverse transcriptase, and RNA polymerase.

42. Schneider et al., column 25, teach that the fluorophore can be linked directly or indirectly to the nucleotide.

Art Unit: 1634

43. Schneider et al., column 9, teach that the donor and acceptor fluorophores need to be within 10 to 100 Angstroms of one another for fluorescence resonance energy transfer to take place.

44. Schneider et al., column 24, first full paragraph, teach that the linkage which couples the fluorophore to the nucleotide can be designed such that it is cleaved, thereby releasing the fluorophore, prior to the incorporation of the next nucleotide.

45. While Schneider et al. disclose numerous polymerases, they do not teach specifically if the polymerases lack exonuclease activity.

46. Williams et al., column 4, teach that their method utilizes polymerases that are deficient in exonuclease activity.

47. Williams et al., column 7, disclose polymerases that are useful in such a procedure. As seen therein, one such polymerizing agent is *Taq* polymerase as well as T7 DNA polymerase, Klenow polymerase, reverse transcriptase, etc.

48. Williams et al., column 12, bridging to column 13, disclose using fluorescently-labeled nucleotides, and their being incorporated by the aforementioned polymerases.

49. Williams et al., column 7, disclose compositions which are used to carry out various reactions. Said compositions are described as comprising the above identified nucleotides and polymerases.

50. Neither Schneider et al., nor Williams et al., have been found to disclose using nucleotide where the fluorescent label is attached to a terminal phosphate.

Art Unit: 1634

51. Cashman, column 12, teach explicitly of devising kits that comprise not only any of a variety of polymerases, but also nucleotides that bear a fluorescent label attached to a terminal phosphate.

52. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the compositions of Cashman with that of Williams et al., and Schneider et al., as such would have allowed the ordinary artisan to combine labeled polymerases with labeled nucleotides wherein the labels can be a member of a FRET pair. As the prior art teaches explicitly of using both these polymerases with terminal phosphate labeled nucleotides.

53. Neither Schneider et al., Williams, nor Cushman have been found to teach the specific amino acids positions of *Taq* polymerase recited in claims 19, 56, 70, 78, 88, and 99. The selection of which amino acid of *Taq* polymerase to be labeled is not deemed to constitute a patentable distinction as Schneider et al., column 9, teach that the donor and acceptor fluorophores need to be within 10 to 100 Angstroms of one another for fluorescence resonance energy transfer to take place. With Cashman teaching the use of terminal-phosphate labeled nucleotide, it would be a matter of routine experimentation and optimization to identify those amino acids that would result in the FRET pair being within the prescribed distance.

54. It is well settled that routine optimization is not patentable, even if it results in significant improvements over the prior art. In support of this position, attention is directed to the decision in *In re Aller, Lacey, and Hall*, 105 USPQ 233 (CCPA 1955):

Normally, it is to be expected that a change in temperature, or in concentration, or in both, would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art. *In re Dreyfus*, 22 C.C.P.A. (Patents) 830, 73 F.2d 931, 24 USPQ 52; *In re Waite et al.*, 35 C.C.P.A. (Patents) 1117, 168 F.2d 104, 77 USPQ

Art Unit: 1634

586. Such ranges are termed "critical" ranges, and the applicant has the burden of proving such criticality. In re Swenson et al., 30 C.C.P.A. (Patents) 809, 132 F.2d 1020, 56 USPQ 372; In re Scherl, 33 C.C.P.A. (Patents) 1193, 156 F.2d 72, 70 USPQ 204. However, even though applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within the capabilities of one skilled in the art. In re Sola, 22 C.C.P.A. (Patents) 1313, 77 F.2d 627, 25 USPQ 433; In re Normann et al., 32 C.C.P.A. (Patents) 1248, 150 F.2d 708, 66 USPQ 308; In re Irmscher, 32 C.C.P.A. (Patents) 1259, 150 F.2d 705, 66 USPQ 314. More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Swain et al., 33 C.C.P.A. (Patents) 1250, 156 F.2d 239, 70 USPQ 412; Minnesota Mining and Mfg. Co. v. Coe, 69 App. D.C. 217, 99 F.2d 986, 38 USPQ 213; Allen et al. v. Coe, 77 App. D. C. 324, 135 F.2d 11, 57 USPQ 136. (Emphasis added)

55. Attention is directed to the decision in KSR International Co. v. Teleflex Inc., 82

USPQ2d 1385 (U.S. 2007)

When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill in the art has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.

56. For the above reasons, and in the absence of convincing evidence to the contrary, claims 16, 19, 50-56, 64-74, 76-92, 94-100, and 102-106, 108-111 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,982,146 B1 (Schneider et al.) in view of US Patent 7,037,687 B2 (Williams et al.) and US Patent 5,849,478 (Cashman).

Response to argument

57. At page 18 of the response, applicant's representative asserts:

Applicants reassert their arguments regarding Schneider et al. here. The inclusion of Williams et al. and Cushman does nothing to alleviate the deficiencies in Schneider et al. Schneider et al. did not disclose the use of nucleotides bearing non-persistent labels in sequencing strategies including FRET strategies.

58. The above argument has been fully considered and has not been found persuasive for a shown above, Schneider et al., at column 24, first full paragraph, teach that the linker used to attach the fluorophore (applicant's tag) to the nucleotide can be cleaved prior to the incorporation of the next nucleotide. Clearly, the removal of the fluorophore label (tag) prior to the incorporation of the next nucleotide meets the limitation of non-persistent labeling.

59. Therefore, and in the absence of convincing evidence to the contrary, the rejection is maintained.

Conclusion

60. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley L. Sisson whose telephone number is (571) 272-0751. The examiner can normally be reached on 6:30 a.m. to 5 p.m., Monday through Thursday.

61. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla, Ph.D. can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1634

62. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bradley L. Sisson/
Primary Examiner, Art Unit 1634